

Space and Missile Systems Center



Partnership Council MGUE Test Program

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GYPSY Juliett: Overview

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- **GJ operational exercise**
 - USSTRATCOM-sponsored PNT Operational Field Assessment
 - Location: Pacific Missile Range Facility (PMRF)
 - Executed by Joint Navigation Warfare Center (JNWC)
 - Operations in various GPS denied and degraded (D2) environments
 - Focused on Intelligence, Surveillance, & Reconnaissance (ISR) platforms
- **SMC/GP participation**
 - Evaluate performance of prototype MGUE cards on Non-Interference Basis
 - Test in representative operational threat environments
 - Utilization of Live Sky MNAV signals
 - MGUE Test Operations
 - Racks: Static Tests
 - RQ-11B Raven: Integration, Static/Dynamic Tests



First Successful Flight Data Collection of Integrated M-Code Receiver



MGUE RED FLAG Performance

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- RED FLAG testing allowed MGUE to test in an operationally representative threat environment utilizing live sky signals
- Utilized C-12J as a platform
- Success:
 - First time M-Code signal was tracked during flight with an airborne receiver
 - First INS Aiding of GRAM-S/M in flight
 - M-Code receivers held lock longer and re-acquired signal faster than Y-Code receivers in a jamming environment.



First time in-flight aviation receiver acquired and tracked M-Code



MGUE T-38 Demo Performance

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- Utilized T-38 to showcase MGUE capabilities
 - “Fighter-type” dynamic profiles
 - Quick Accelerations / Inertial forces (g’s)
 - Rapid vector changes (altitude & directional)
 - Jamming environment
- Success -- MGUE card held lock!
 - Both in contested and benign environments



A Rear Cockpit Pallet mounted in the back of a T-38 Talon



Aviation receiver acquired and tracked M-Code w/ fighter dynamics



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QUESTIONS?